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EXAMINER

VILLECCO, JOHN M

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL KAPLINSKY

Appeal 2008-1123
Application 09/209,982
Technology Center 2600

Decided: September 18, 2008

Before KENNETH W. HAIRSTON, JOHN A. JEFFERY,
and R. EUGENE VARNDELL, JR., *Administrative Patent Judges*.

VARNDELL, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 from the Examiner's rejections of claims 1, 3-9, 11-13, 16, 17, and 21-26, all the pending claims in the application. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

STATEMENT OF THE CASE

The invention claimed on appeal relates generally to an image correction method and system for correcting a plurality of desired colors (Spec. 7). An error signal is obtained for each desired color (Spec. 8-9).

The error signal is determined as the square of the difference between an expected color value (the reference color) and a detected color value (Spec. 8-9). In order to obtain the highest quality overall image, more importance is attached to some colors at the expense of others (Spec. 10). Prioritizing colors is achieved using a weighting coefficient applied to the individual color error measures to determine a weighted error measure (Spec. 10).

Independent claims 1, 6, and 13, which further illustrate the invention, follow:

1. An image correction method comprising:

obtaining expected signals for an image-rendering device of each of a plurality of known reference colors;

obtaining detected signals by imaging a color image array under conditions similar to those occurring during user operation of an image sensor, said detected signals being obtained for said plurality of known reference colors, said plurality of known reference colors including white, at least three primary colors, and at least two other non-primary colors;

determining an error measure, G_E , R_E , B_E , for each of said plurality of known reference colors, said error measure being calculated by

$$(G_n' - G_c)^2 = G_E$$

$$(R_n' - R_c)^2 = R_E$$

$$(B_n' - B_c)^2 = B_E$$

where G_n' , R_n' and B_n' are expected color values, G_c , R_c and B_c are actual detected color values;

applying a weight factor to said error measure for each of said plurality of known reference colors to obtain a respective weighted error measure for each of said plurality of known reference colors; and

obtaining a color correction matrix by simultaneously reducing the weighted error measure for each of said plurality

of known reference colors to obtain color correction for said plurality of known reference colors.

6. An image sensor apparatus, comprising:

an image sensor device, operating using a color filter array which provides color filtering such that colors transmitted to each pixel of a color image array of said image sensor device are converted to signals for all color components provided by said color filtering; and

an image processor arranged and configured to color-correct images obtained by said image sensor device according to a color correction matrix obtained by simultaneously reducing respective weighted error measures, each of said weighted error measures being calculated by applying a weight factor to a squared difference between signals seen for a known reference color from said color image array of said image sensor device and signals expected to be seen for said reference color, said color correction matrix being obtained according to at least the color white, three primary colors, and at least two additional non-primary colors.

13. A method of correcting an image from an image sensor including a color image array having a plurality of pixels, comprising:

obtaining signals expected to be seen for each of a plurality of known reference colors; and

obtaining a color correction matrix for said pixels, said color correction matrix being one which takes into account correction for at least the color white, three primary colors, and two other non-primary colors by simultaneously reducing error measures relative to each color, wherein respective error measures for said non-primary colors are weighted such that said color correction matrix corrects for some of said non-primary colors more than said primary colors, each error measure representing a squared difference between signals actually seen for a known reference color from said color image

array and said signals expected to be seen for each of said reference outputs.

The Examiner relies on the following prior art references to show unpatentability:

Endo	US 6,256,062 B1	Jul. 3, 2001
Kim	US 6,320,668 B1	Nov. 20, 2001
Yamaguchi ¹	JP 2-74367 A	Mar. 14, 1990

Claims 1, 4-9, 11-13, 16, 17, and 21-26 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kim in view of Yamaguchi.

Claim 3 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Kim in view of Yamaguchi in further view of Endo.

Rather than repeat the arguments of Appellant or the Examiner, we refer to the Briefs and the Answer for their respective details. In this decision, we have considered only those arguments actually made by Appellant. Arguments which Appellant could have made but did not make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

OPINION

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).

¹The record contains an English translation of Yamaguchi.

The Examiner states that Kim discloses all limitations of claims 1, 6, and 13 except for weighting the error measure (Ans. 3-5, 11). While Appellant does not concede these factual findings of the Examiner, Appellant's Briefs focus on claim limitations concerning weighting a calculated error measure for a plurality of colors (App. Br. 9-19, Reply Br. 3-5). The Examiner admits neither Kim nor Yamaguchi specifically discloses using a weighted error message to correct a color image (Ans. 11). The Examiner argues that it is well known in the art to weight certain colors more than others to emphasize them (Ans. 11). The Examiner concludes that one of ordinary skill in the art would have found it obvious to weight the error measures of Kim based on Yamaguchi and thereby arrive at the invention claimed on appeal (Ans. 11).

The issue before us is whether the collective teachings of Kim and Yamaguchi teach or suggest applying a weight factor to an error measure for each of a plurality of known reference colors to obtain a respective weighted error message for each of the plurality of known reference colors, where the error measure is based on a squared difference between expected color values and actual detected colors for a plurality of colors, as required in the claims on appeal.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974). In the record before us, the Examiner has not provided a factual basis for applying a weight factor to the error measure for each of a plurality of known reference colors to obtain a respective weighted error message for each of the plurality of known reference colors, where the error measure is based on a squared difference between expected color

values and actual detected colors for a plurality of colors, as required in the claims on appeal. For these reasons, the Examiner has not established prima facie obviousness of the invention claimed on appeal. *See, e.g., In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000) (reversing obviousness rejection involving technologically simple concept because there was no finding as to the principle or specific understanding within the knowledge of a skilled artisan that would have motivated the skilled artisan to make the claimed invention).

For these reasons, we will not sustain the Examiner's § 103(a) rejection based on Kim and Yamaguchi of independent claims 1, 6, and 13 or dependent claims 4, 5, 7-9, 11, 12, 16, 17, and 21-26. Since the disclosure to Endo does not cure the deficiencies noted above with respect to independent claim 1, we will likewise not sustain the Examiner's separate § 103(a) rejection of dependent claim 3 over Kim, Yamaguchi and Endo.

CONCLUSION

We have not sustained the Examiner's rejection with respect to any of the claims on appeal. Therefore, the Examiner's decision rejecting claims 1, 3-9, 11-13, 16, 17, and 21-26 is reversed.

Appeal 2008-1123
Application 09/209,982

REVERSED

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